CASE REPORTS

Domestic violence: the shaken adult syndrome

T D Carrigan, E Walker, S Barnes

Abstract
A case of domestic violence is reported. The patient presented with the triad of injuries associated with the shaking of infants: retinal haemorrhages, subdural haematoma, and patterned bruising; this has been described as the shaken adult syndrome. This case report reflects the difficulties in diagnosing domestic violence in the accident and emergency setting.
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Keywords: domestic violence; women; assault

Domestic violence is an under-reported and major public health problem that often first presents to the accident and emergency (A&E) department. It accounts for half of all violent crimes against women, and two deaths per week have been linked to domestic violence in Britain.[1] Indeed, the Department of Health has issued statements to ensure health professionals are aware of domestic violence in this context when patients present with consistent traumatic injuries.[2]

The following case report reflects the difficulties in diagnosing domestic violence in the A&E setting, and stresses the timely referral of such patients to the relevant authorities.

Case report

A 34 year old woman was brought to the A&E department by ambulance at 0400 hours with head injuries. When handed over from the ambulance crew an assault was queried, although the patient later stated she had fallen down stairs after moderate alcohol ingestion.

Her initial blood pressure was 119/72 mm Hg, pulse 88 beats/min, her pupils were equal and reactive directly and consensually, and her Glasgow coma score was 13/15 (she was confused and was opening her eyes to command). Examination of the head showed bilateral periorbital ecchymoses, nasal bridge swelling and epistaxis, a right frontal abrasion, and an occipital scalp haematoma. Ecchymoses were also noted on her back and buttocks, being linear in fashion on both upper arms, and her underpants were torn. Initial skull and facial *x* ray films were normal, and she was admitted under the care of A&E for neurological observations.

Over the next 24 hours, her Glasgow coma score improved to 15/15, but she had vomited five times and complained that her vision remained blurred. Visual acuity was only hand movements in the right eye and finger counting in the left. Ophthalmological review confirmed both retinal and preretinal haemorrhages in the right eye and a retinal haemorrhage on the left. Both maculae were affected by the haemorrhage (fig 1). Haematological investigations, including a full blood count and a clotting screen, were within normal parameters, and computed tomography of the head revealed a small left temporal subdural haemorrhage with adjacent oedema.

It was only after 48 hours and repeated advice that she should seek help and report the injuries to the police, that she admitted that domestic violence had occurred.

Ongoing police and consultant medical review showed photographic evidence of patterned bruising to the upper arms, and also several circular burns to the face and arm, similar to the type caused by the deliberate

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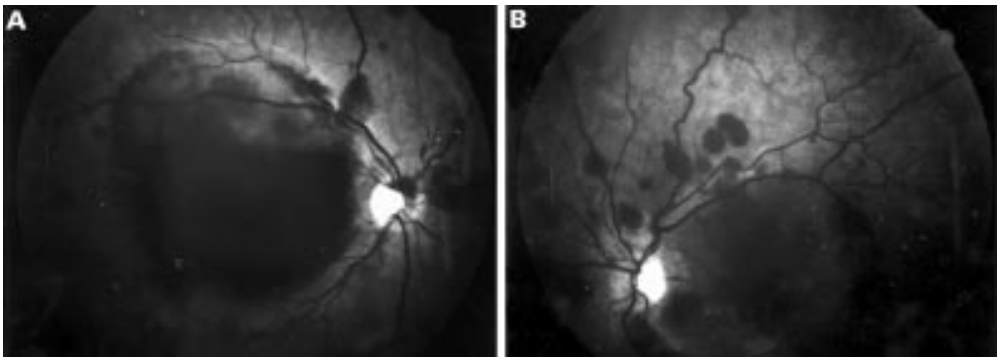

Figure 1 Photographs showing (A) retinal haemorrhage in the right eye and (B) retinal and preretinal haemorrhages in the left eye.

application of lit cigarettes. She suffered postconcussional symptoms for two weeks. Five weeks after the initial injury she reattended with persistent atypical chest pain. Three months later her visual acuity had improved on the left to 6/24, but remained unchanged on the right, and a vitrectomy was contemplated for that side.

Discussion

This patient had the diagnostic triad of retinal haemorrhages, subdural haematoma, and patterned bruising that is associated with forceful and repeated shaking of infants. Such a triad has previously been documented postmortem in a Palestinian adult who died under interrogation by the Israeli security forces, and has been described as the shaken adult syndrome.[3]

Even when the presenting history is misguiding, all injuries must be thoroughly documented, and appropriate treatment instituted. Management also involves guiding the patient to autonomously decide whether to accept help and/or legal assistance. In most states of America, it is mandatory to report domestic violence related injuries, though the American College of Emergency Physicians oppose this, stating that reporting should be in accordance with the patient's wishes.[4] Confidentiality was considered in this case, and gradual discussion broke down the barriers of denial. Eventual admission of domestic violence took three days though, a luxury not often available to emergency clinicians.

Early detection and documentation of injuries consistent with domestic violence must be attempted, and in this case, earlier documentation of visual acuity would have facilitated an earlier diagnosis of retinal haemorrhage.

The diagnosis of "shaken adult syndrome" was eventually made, supported by delayed diagnosis of some of the classical signs consistent with non-accidental injury.

Domestic violence victims are often discharged home the same day, thus losing that window of opportunity to allow for intrinsically motivated acceptance of help. Not all A&E departments have access to their own observation beds, though many departments are now managing head injuries, especially now that neurosurgical care has centralised to regional centres of excellence.

The way forward should be a more structured method of follow up of suspected victims of domestic violence that is initiated in the A&E department. As it is in suspected paediatric non-accidental injury, so one can prevent repeat episodes to not only the patient, but also to their children and other family members. The A&E department should grasp this initiative.

Contributors
Thomas Carrigan, guarantor of the case report, initiated and coordinated the collection of the clinical history, investigation confirmation, and writing of the abstract.
Ed Walker was involved with interpretation of the case, background research, and writing of the report. Dr Barnes was involved with the critical revision of the report, and with the collation of photographic evidence of the patient.

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1 Hall C. One in four women face violence in the home. *Daily Telegraph*, 1 July 1998.
2 Department of Health NHS Executive. *Domestic violence*. London. Department of Health, 1997.
3 Pounder D. Shaken adult syndrome. *Am J Forensic Med Pathol* 1997;**18**:321–4.
4 American College of Emergency Physicians. Mandatory reporting of domestic violence to law enforcement and criminal justice agencies. *Ann Emerg Med* 1997;**30**:561.

Airbag associated fatal head injury: case report and review of the literature on airbag injuries

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Abstract
Airbags have been shown to significantly reduce mortality and morbidity in motor vehicle crashes. However, the airbag, like the seat belt, produces its own range of injuries. With the increasing use of airbags in the UK, airbag associated injuries will be seen more often. These are usually minor, but in certain circumstances severe and fatal injuries result. Such injuries have been described before in the medical literature, but hitherto most reports have been from North America. This is the first case report from the UK of serious injury due to airbag deployment and describes the case of a driver who was fatally injured when her airbag deployed in a moderate impact frontal collision where such severe injury would not normally have been anticipated. The range of airbag associated injuries is described and predisposing factors such as lack of seat belt usage, short stature, and proximity to airbag housing are discussed. The particular dangers airbags pose to children are also discussed.
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Keywords: airbags; head injury

The introduction of airbags has led to a significant reduction in morbidity and mortality from road traffic accidents.[1 2] However, the airbag like the seat belt produces its own range of